Small Business Innovation Research/Small Business Tech Transfer

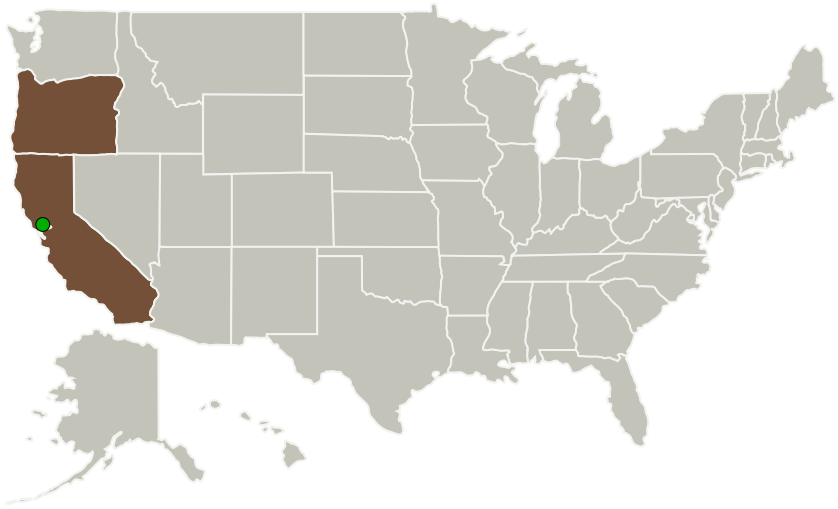
FACET as a Collaborative, Open Source UAS Research Platform, Phase I

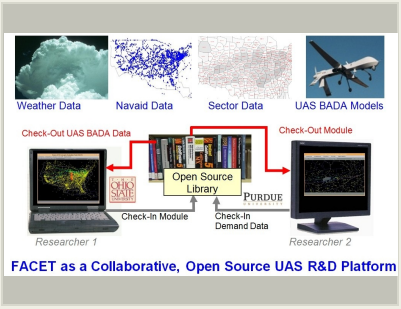
Completed Technology Project (2013 - 2013)

Project Introduction

We build a tool that accelerates Research and Development (R&D) aimed at introducing Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS). In the proposed effort, FACET will form the basis of a collaborative R&D platform, an environment where users can share open source software modules (software and data sets developed to reside outside the FACET Application Programmers Interface (API)) between users at the same or different universities, so that each user can benefit from the open source software and data contributions of others. Thus, when a student who has never used FACET before enters into a collaborative study of UAS integration in the NAS, he/she is able to download open source software and data to get going on rich R&D experiment without having to start from scratch. A student can download weather data sets, Special Use Airspace (SUA) data, air traffic demand data, UAS models (e.g., Base of Aircraft Data (BADA)) and flight plans, metrics, or anything that is posted on the open source library, to get a "running start" with R&D. When completing innovative modules outside the API, the student can post software to the open source repository for others to benefit. This collaborative environment will also allow for FACET-based research to be performed in a distributed manner – where simulations at one university may be run with models and parameters provided by other users at different universities, and the results posted back to the common repository for all users to share. This open-source collaborative platform is demonstrated on R&D problems aimed at introducing

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
The Innovation Laboratory, Inc.	Lead Organization	Industry Women-Owned Small Business (WOSB)	Portland, Oregon
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Oregon

Project Transitions

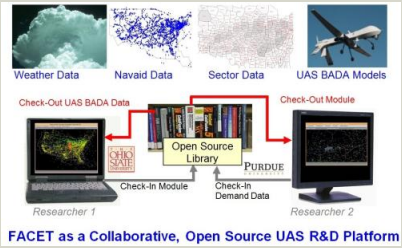
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138151)*

Images



Project Image
FACET as a Collaborative, Open Source UAS Research Platform *(https://techport.nasa.gov/image/134489)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
The Innovation Laboratory, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

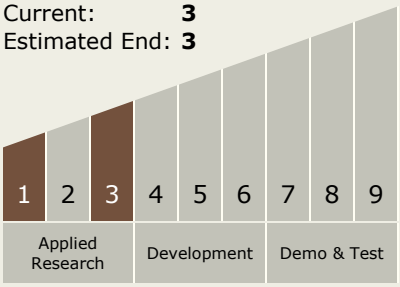
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Jimmy Krozel

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.4 Architectures and Infrastructure

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System